

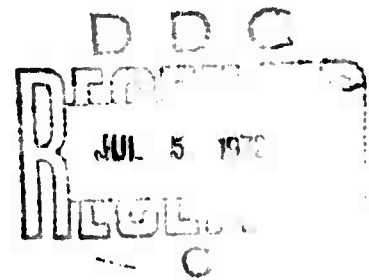
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May 1972

Supplemental Global Climatic Data: January

C. Schutz and W. L. Gates



A Report prepared for
ADVANCED RESEARCH PROJECTS AGENCY

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| 10. ABSTRACT The global distributions of the surface albedo for January, the planetary albedo for January, and the total precipitation for December, January, and February are presented as a supplement to the January data previously published (Schutz and Gates, 1971). A number of refinements of the high-latitude sea-surface temperature data have also been made, and the revised global January distribution is given. All data are presented on a global grid of 4-deg latitude and 5-deg longitude, as in the past, and are given in the form of both tabulated values and machine-analyzed maps. These data will be used as a guide in Rand's evaluation of climate simulations based on the Mintz-Arakawa general circulation model. 7 | | 11. KEY WORDS Meteorology Climate Computer Simulation | |

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II

PREFACE

Meteorological studies suggest that technologically feasible operations might trigger substantial changes in the climate over broad regions of the globe. Depending on their character, location, and scale, these changes might be both deleterious and irreversible. If a foreign power were to bring about such perturbations either overtly or covertly, either maliciously or heedlessly, the results might be seriously detrimental to the security and welfare of this country. So that the United States may react rationally and effectively in response to such actions, it is essential that we have the capability to (1) evaluate the consequences of a variety of possible actions that might modify the climate, (2) detect trends in the global circulation that presage changes in the climate, either natural or artificial, and (3) determine, if possible, means to counter potentially deleterious climatic changes. Our possession of this capability would make incautious experimentation unnecessary, and would tend to deter malicious manipulation. To this end, the Advanced Research Projects Agency initiated a study of the dynamics of climate to evaluate the effect of environmental perturbations on climate. This Report is a technical contribution to the study.

An important part of the Rand/ARPA research program on the dynamics of climate is the evaluation of the accuracy of simulations of the global climate given by numerical solutions of models of the general atmospheric circulation (in particular, the Mintz-Arakawa model).

A systematic evaluation requires a knowledge of the global distribution of many climatic variables. In a previous Rand report by C. Schutz and W. L. Gates, (*Global Climatic Data for Surface, 800 mb, 400 mb: January*, R-915-ARPA, January 1971) the January distribution of pressure, temperature, humidity, wind, and annual precipitation was presented together with the associated distributions of the elements of the global radiation and hydrologic balances. At this time it is possible to add to these data the normal surface albedo and the planetary albedo as measured from space. Our continuing research has also

made it possible to refine the original presentation of sea-surface temperature near the poles and to include the precipitation distribution for December, January, and February.

The supplementary data presented here are part of a continuing effort to gather in one place and in a common format the most representative global climatologies of selected seasonal meteorological variables.

SUMMARY

The global distributions of the surface albedo for January, the planetary albedo for January, and the total precipitation for December, January, and February are presented as a supplement to the January data previously published (Schutz and Gates, 1971). A number of refinements of the high-latitude sea-surface temperature data have also been made, and the revised global January distribution is given. All data are presented on a global grid of 4° latitude and 5° longitude, as in the past, and are given in the form of both tabulated values and machine-analyzed maps. These data will be used as a guide in Rand's evaluation of climate simulations based on the Min*2-Arakawa general circulation model.

ACKNOWLEDGMENTS

Appreciation is extended to R. C. Alexander for his efforts in developing the data on sea temperatures and ice limits at high latitudes. Thanks are also due R. L. Mobley and A. B. Nelson for reducing these data to the desired format.

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1. INTRODUCTION

The data presented in Schutz and Gates (1971) describe the January global distribution of the primary climatic elements of pressure, temperature, wind, and moisture, together with a number of components of the surface heat and water balances. The supplementary data presented here for the albedo and precipitation and the refinements to our original presentation of sea-surface temperature are part of a continuing effort to present the best climatologies available. These data will be used in the evaluation of climate simulation experiments based on numerical general circulation models, the Mintz-Arakawa model in particular. A documentation of this model is now available (Gates, et al., 1971).

Despite an exhaustive search for the best possible January data, some variables were not readily available for the compilation of Schutz and Gates (1971); other variables have been updated at Rand or obtained from new reference material. The new January data presented in this Report are summarized in Table 1.1.

Section 2 discusses the data selection and processing. Section 3 presents a global analysis of each variable selected. The corresponding distribution of the zonal averages and the global average values are given in Section 4, and Section 5 gives tabulations of the associated grid-point data. The asterisks (*) in the grid-point tabulations denote regions with missing data. These regions correspond to the blank or "no data" areas of the analyzed maps and zonal averages. An exception occurs in the sea-surface temperature data in Sections 3 and 5, where the letter "I" is also included to denote the location of sea ice.

Table 1.1

IDENTIFICATION OF SUPPLEMENTARY CLIMATIC VARIABLES FOR JANUARY

| Data or Variable | Unit | Source | Record Period | Pages ^a |
|--------------------------------|------------------------|---|-----------------------------|--------------------------|
| Temperature (sea surface) | deg C | Washington and Thiel (1970); U.S. Navy Hydrographic Office Atlases (1944, 1957, 1958) | Unknown | 9, 15, 21 |
| Dec-Jan-Feb Precipitation | mm/day ⁻¹ | Möller (1951) | Unknown ^b | 10, 16, 25 |
| Annual Precipitation | mm/day ⁻¹ | Lvovitch and Ovtchinnikov (1964) | 1950-1956 (?) | --, --, 29 (revised) |
| Albedo Surface Planetary | Fractions Fractions | Posey and Clapp (1964) (c) | Unknown ^b --- | 11, 17, 33 12, 18, 37 |

^aThe three numbers in this column denote the page numbers of the global map analyses, the zonal averaged data, and the global data tabulations.

^bA long unknown period of record (from several sources).

^cData from unpublished maps by T. H. MacDonald, "ESSA 7 Albedo Data," Radiation Branch, National Environmental Satellite Center, Washington, D.C., January 1969.

2. DATA SELECTION AND PROCESSING

The processing or manipulation of each new source of January data identified in Table 1.1 is briefly described below. Although the discussion refers primarily to the data of Section 3, it also applies to the corresponding zonally averaged data of Section 4, as well as the supporting grid-point data tabulations of Section 5.

It should be noted that the previously published data on zonally averaged mean meridional geostrophic winds (Figs. 4.18 and 4.24 of Schutz and Gates, 1971) are erroneous. These data reflect the rounding error in the averaging process, and should be identically zero.

SEA-SURFACE TEMPERATURE

The global distribution of average January sea-surface temperatures shown in Fig. 3.1 is based largely on the data contained in the NCAR publication of monthly averages (Washington and Thiel, 1970). The NCAR data, which apply between latitudes of 66°N and 66°S, were linearly extrapolated by 2.5° of latitude and longitude in the direction of land or ice (interpolated for small islands or narrow peninsulas) and then transferred to the 4° latitude, 5° longitude grid by interpolation. Poleward of 66°N and 66°S, sea temperature and the distribution of sea ice were obtained from U.S. Navy Hydrographic Office Atlases (1944, 1957, 1958). The grid elements containing more than 50 percent sea ice are denoted by "I" in Fig. 3.1. This introduces a bias toward more severe ice conditions. (For example, if 60 percent of an area contains ice of 60 percent concentration, only 36 percent of the area is actually covered by ice.) This bias may partly compensate for the usual bias in the data toward calm, warm weather and ice-free conditions when ships can operate. In high northern latitudes, February sea temperatures were used, which are slightly colder than those of January.*

* The U.S. Navy Hydrographic Office Atlases (1957, 1958) show sea temperatures only for February, May, August, and November.

PRECIPITATION

The global distribution of the annual precipitation (Fig. 3.6A of Schutz and Gates, 1971) remains a valuable source of information based on the work of Lvovitch and Ovchinnikov (1964). We also note that in the tabulation of these data (Table 5.6A of Schutz and Gates, 1971), erroneous values were given for the annual precipitation at 90°N and 90°S. These errors have been corrected in Table 5.2A presented here.

The December-January-February distribution of precipitation for the globe (Fig. 3.2) was obtained from visual interpolation onto a 5° latitude, 5° longitude grid from the analysis of Möller (1951). This was followed by linear interpolation to the points of the present grid. Although these data involve some empirical partitioning of the observed annual precipitation similar to that of Jacobs (1968), they are apparently the only global distributions available. The zonally averaged mean precipitation (Fig. 4.2) based on Möller (1951) supplements the previous data (Fig. 4.6B of Schutz and Gates, 1971), which was based on seasonal ocean apportionment extended over the intervening land masses (Jacobs, 1968). Table 2.1 shows partitioning of precipitation data, a technique that may prove valuable in future research.

ALBEDO

The values of mean surface albedo for January shown in Fig. 3.3 were transcribed directly onto the 4° latitude, 5° longitude grid from the data of Posey and Clapp (1964). These data show the measured January albedo for various types and amounts of ground cover, and consider the latitudinal variations of solar angle over the ocean.

The values of mean planetary (world) albedo shown in Fig. 3.4 were measured by the ESSA 7 satellite from 16 August 1968 to 23 June 1969. These data were also transcribed directly onto the 4° latitude, 5° longitude grid.* The reduction processes used to obtain these albedo data from the satellite measurements are discussed in detail in MacDonald (1970).

*From unpublished maps by T. H. MacDonald, "ESSA 7 Albedo Data," Radiation Branch, National Environmental Satellite Center, Washington, D.C., January 1969.

Table 2.1

SEASONAL (QUARTERLY) APPORTIONMENT OF PRECIPITATION, BY 10° LATITUDE ZONES
(percent)

| Latitude | Atlantic Ocean | | | | Pacific Ocean | | | | Indian Ocean | | | |
|----------|-------------------|-----------------------|---------------------|--------------------|-------------------|-----------------------|---------------------|--------------------|-------------------|-----------------------|---------------------|--------------------|
| | Dec Jan Feb | March April May | June July Aug | Sept Oct Nov | Dec Jan Feb | March April May | June July Aug | Sept Oct Nov | Dec Jan Feb | March April May | June July Aug | Sept Oct Nov |
| 50°-60°N | 28 | 23 | 21 | 28 | 20 | 22 | 25 | 33 | -- | -- | -- | -- |
| 40°-50°N | 31 | 23 | 20 | 26 | 25 | 24 | 23 | 28 | -- | -- | -- | -- |
| 30°-40°N | 33 | 26 | 16 | 25 | 31 | 27 | 21 | 21 | -- | -- | -- | -- |
| 20°-30°N | 27 | 20 | 22 | 31 | 29 | 24 | 25 | 22 | 13 | 6 | 57 | 24 |
| 10°-20°N | 25 | 15 | 31 | 29 | 18 | 19 | 32 | 31 | 10 | 12 | 46 | 32 |
| 0°-10°N | 22 | 25 | 29 | 24 | 24 | 24 | 27 | 25 | 22 | 20 | 28 | 30 |
| 0°-10°S | 28 | 38 | 17 | 17 | 33 | 23 | 26 | 18 | 27 | 22 | 25 | 26 |
| 10°-20°S | 22 | 22 | 36 | 20 | 32 | 22 | 23 | 23 | 30 | 27 | 25 | 18 |
| 20°-30°S | 23 | 28 | 23 | 26 | 24 | 27 | 27 | 22 | 24 | 31 | 30 | 15 |
| 30°-40°S | 18 | 25 | 33 | 24 | 18 | 26 | 32 | 24 | 17 | 25 | 34 | 24 |
| 40°-50°S | 20 | 26 | 30 | 24 | 22 | 26 | 28 | 24 | 22 | 26 | 28 | 24 |
| 50°-60°S | 26 | 28 | 26 | 20 | 24 | 29 | 22 | 25 | -- | -- | -- | -- |

SOURCE: W. C. Jacobs (1968).

3. GLOBAL CLIMATIC ANALYSES

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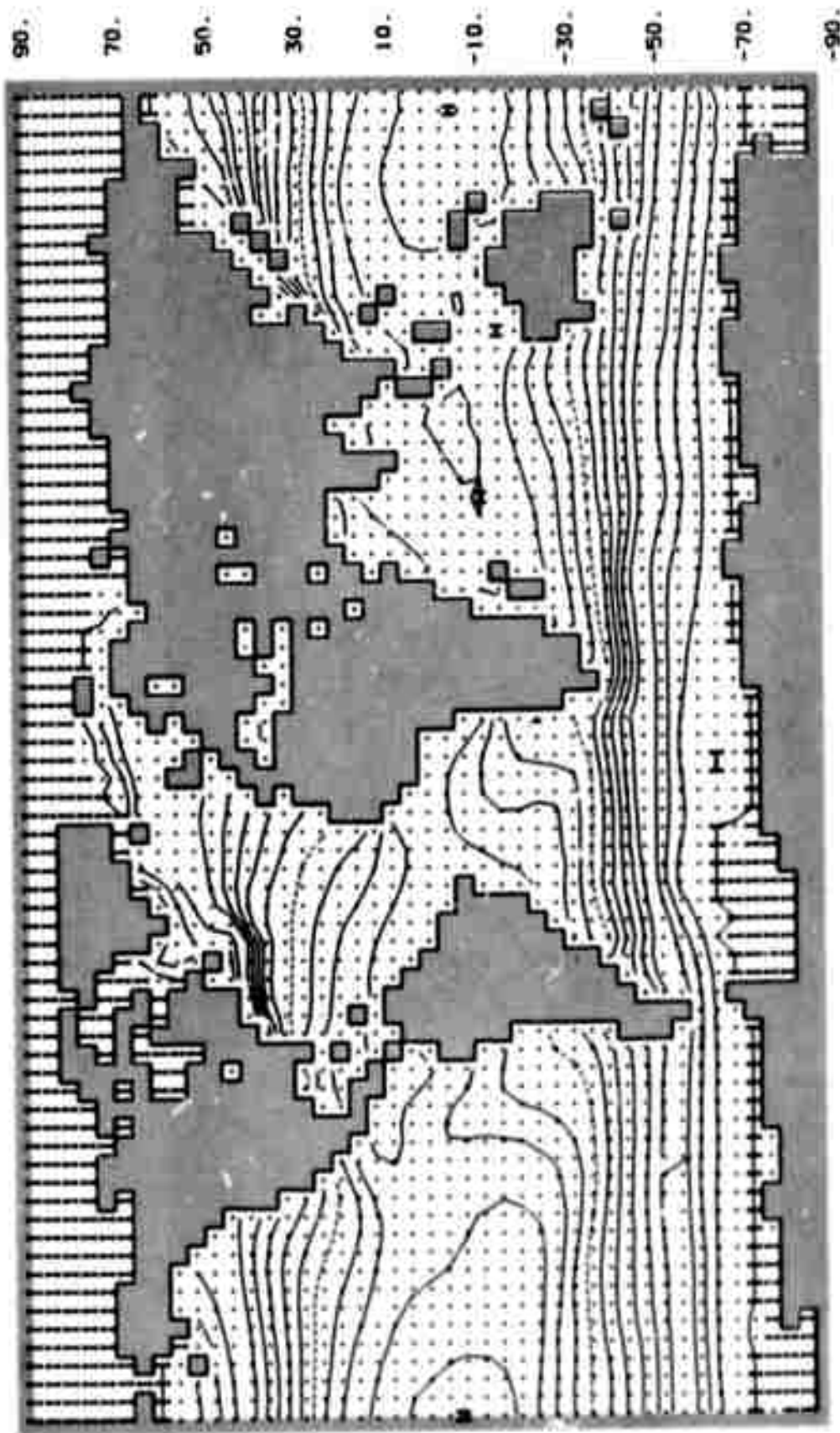


Fig. 3.1 -- Mean January sea-surface temperature in deg C. The analysis interval is 2 deg and the 20-deg C isotherm is dashed. "I" denotes grid elements with sea ice. Deduced from data of Washington and Thiel (1970) and Hydrographic Office Atlases (1944, 1957, and 1958).

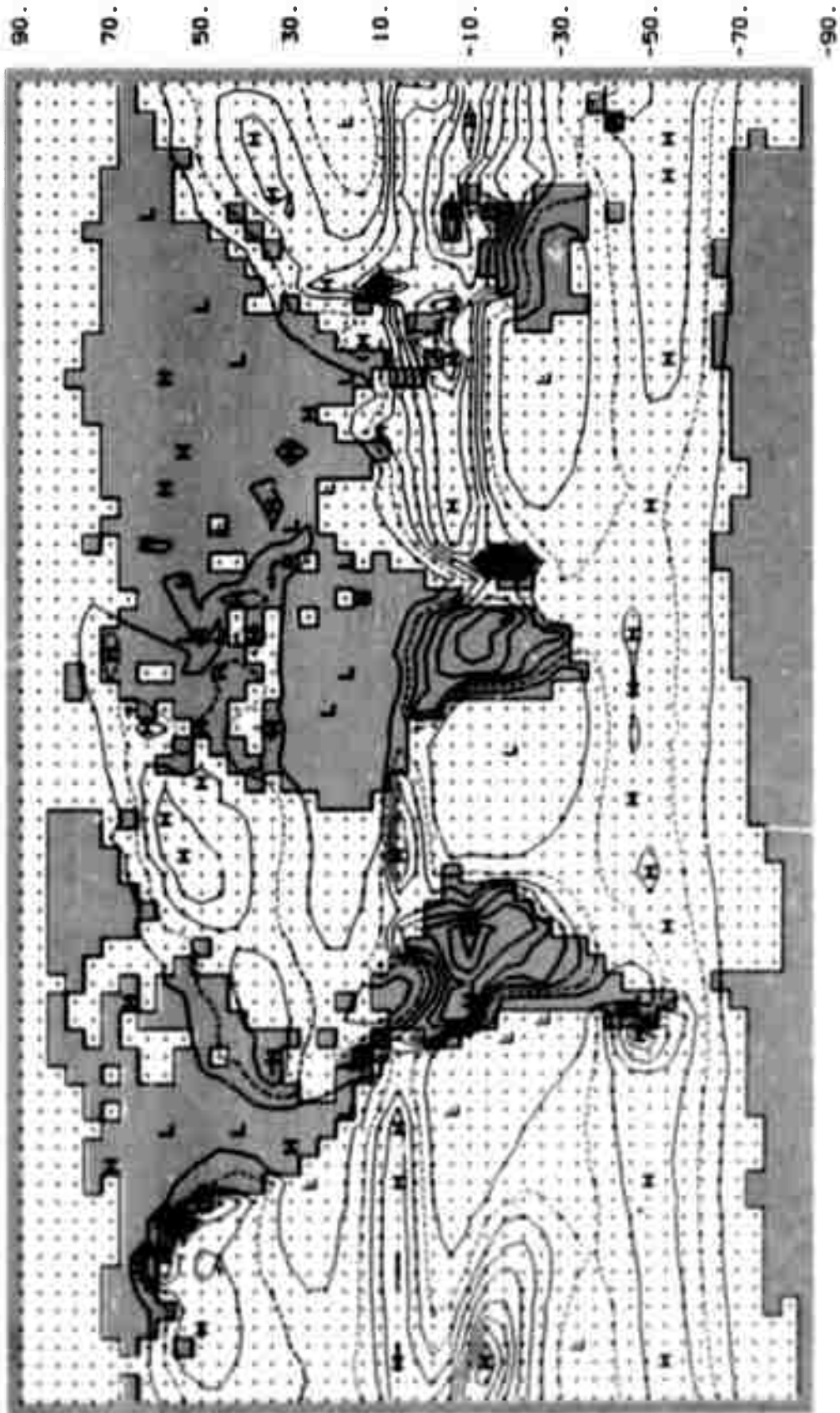


Fig. 3.2 -- Mean December-January-February precipitation in mm/day. The analysis interval is 1.0 mm and the 2.0-mm isohet is dashed. Data from Möller (1951).

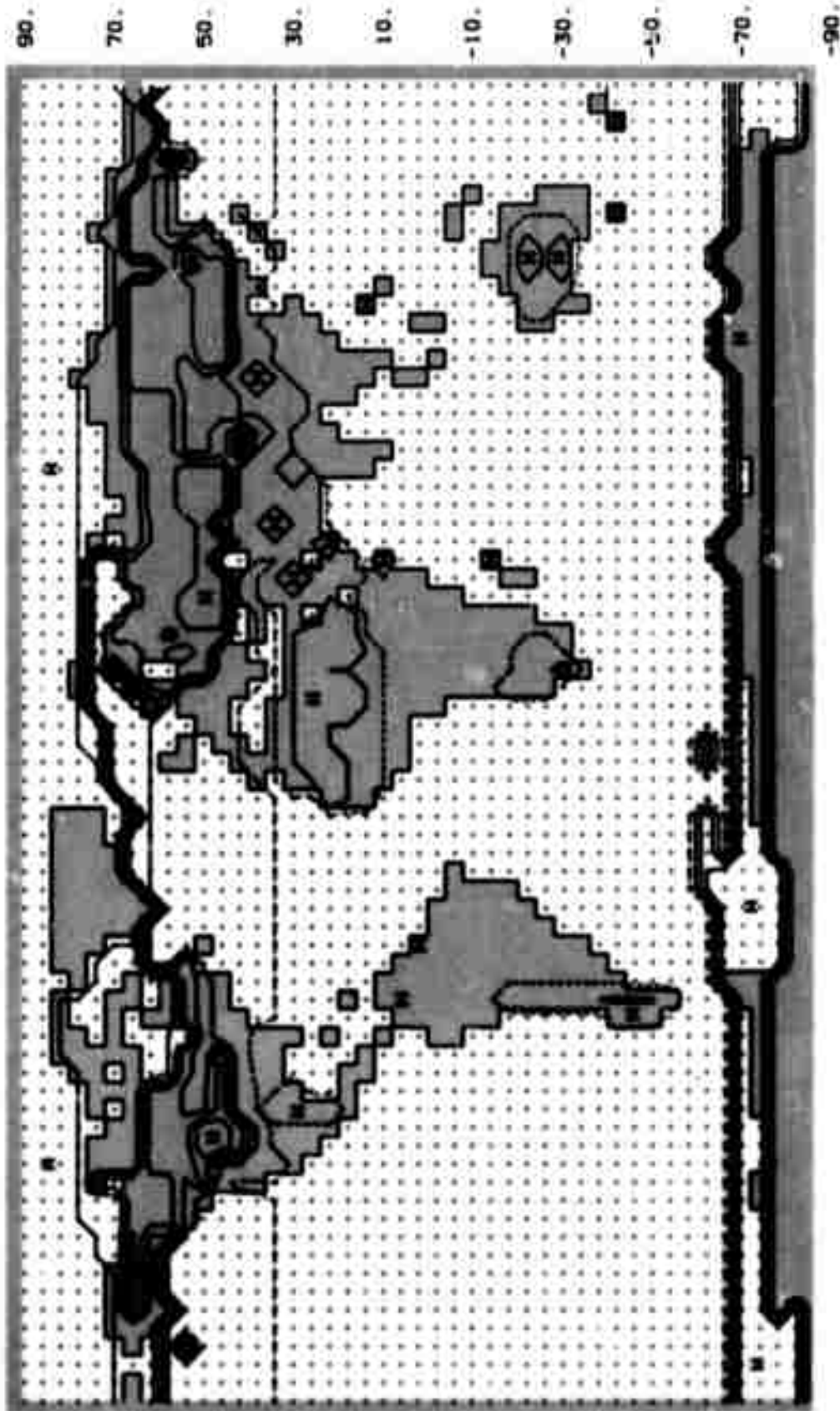


Fig. 3.3 -- Mean January surface albedo (fractions). The analysis interval is 0.1 and the 0.1 isoline is dashed. Computed from data of Posey and Clapp (1964).

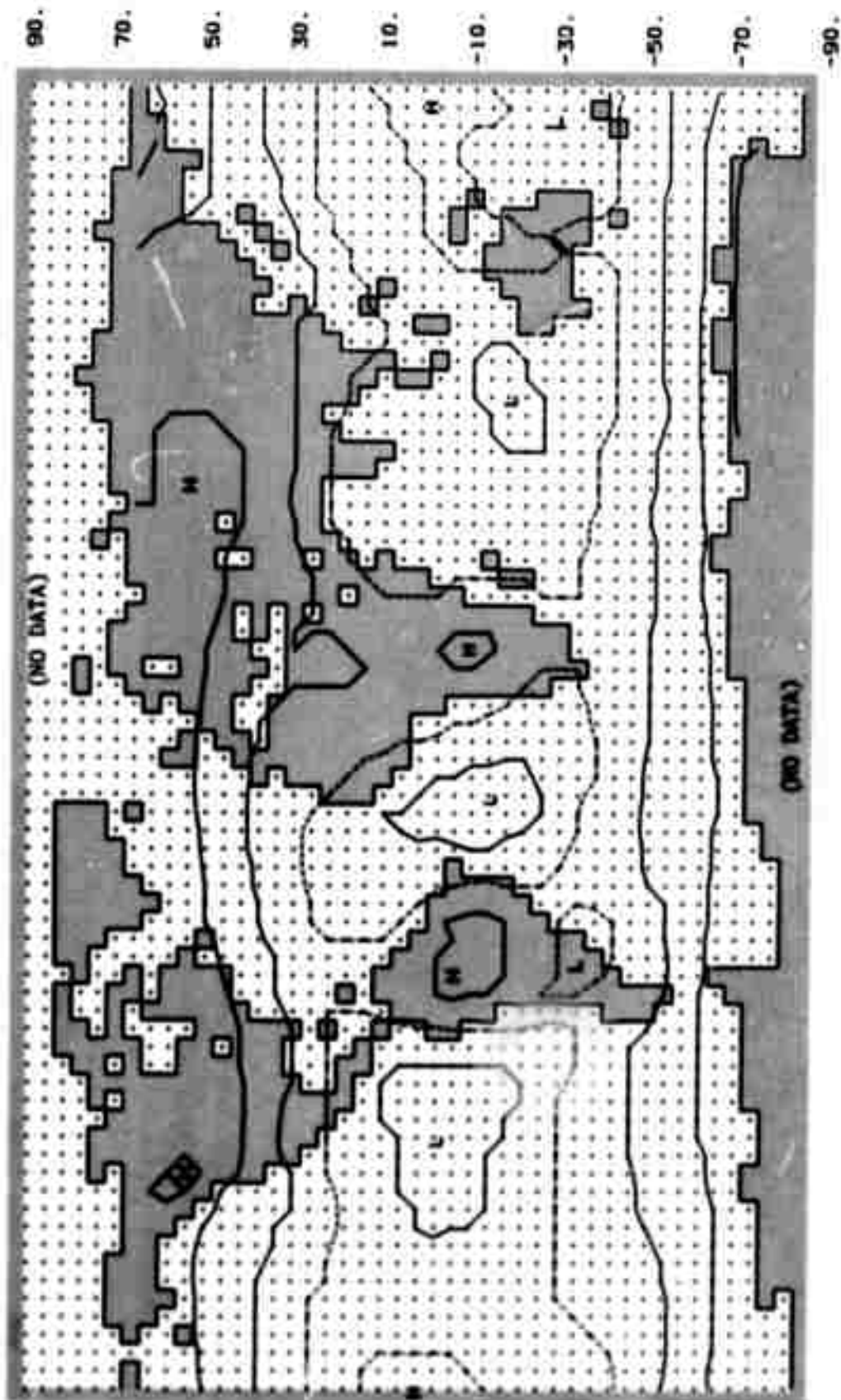


Fig. 3.4 -- Mean January planetary albedo (fractions). The analysis interval is 0.1 and the 0.1 isoline is dashed.

4. ZONALLY AVERAGED DATA

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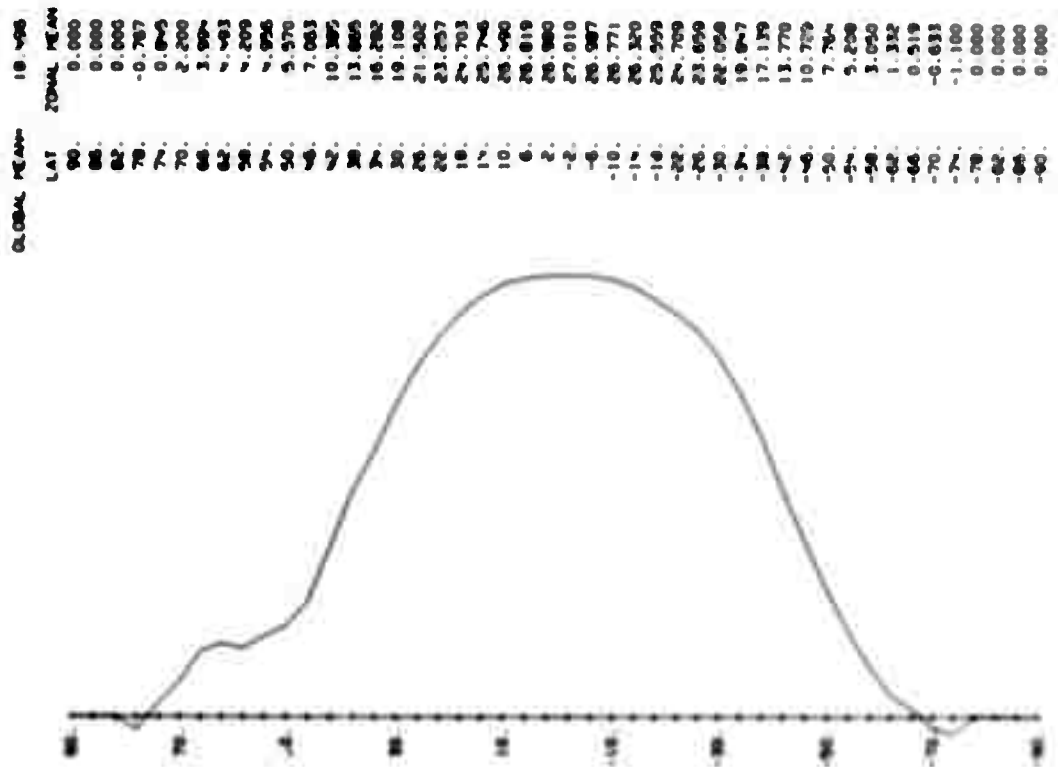


Fig. 4.1 -- Zonally averaged mean January sea-surface temperature in deg C, as found from the data of Fig. 3.1.

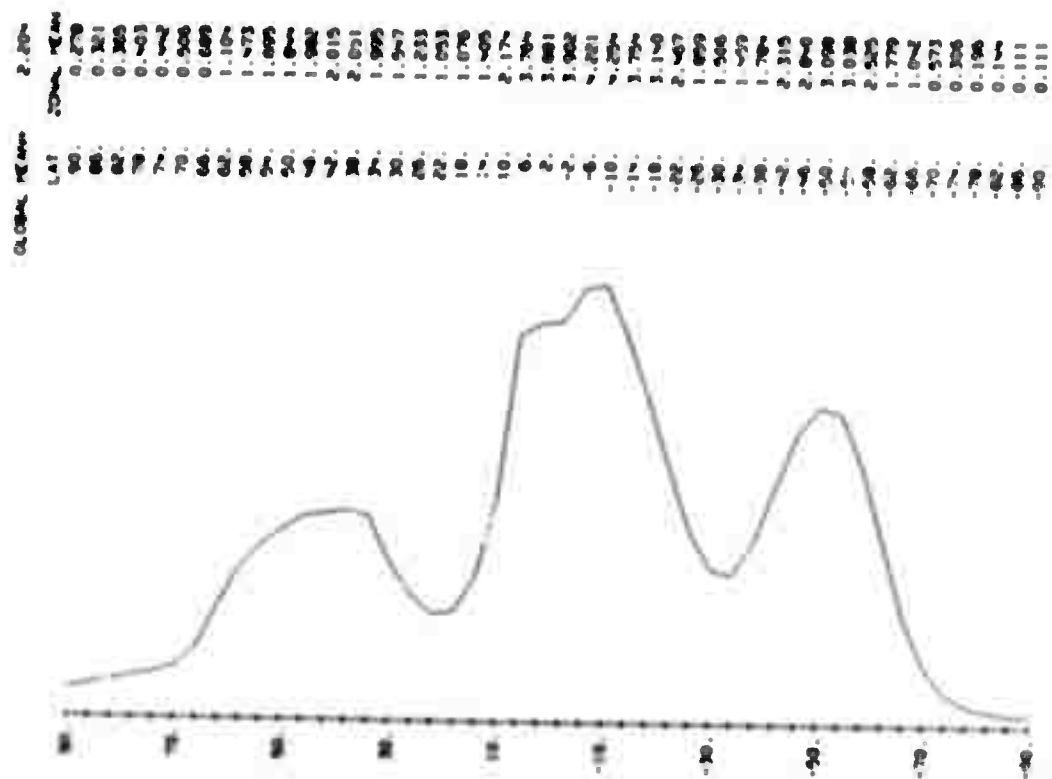


Fig. 4.2 -- Zonally averaged mean December-January-February precipitation in mm/day, as found from the data of Fig. 3.2.

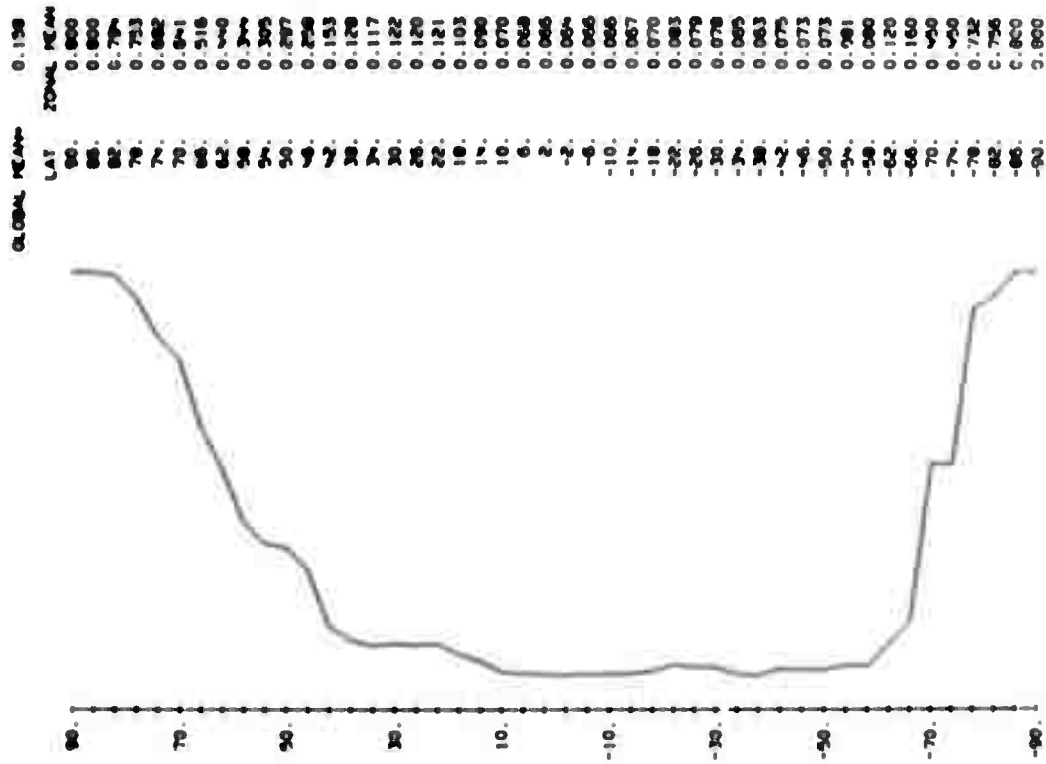


Fig. 4.3 -- Zonally averaged mean January surface albedo (fractions), as found from the data of Fig. 3.3.

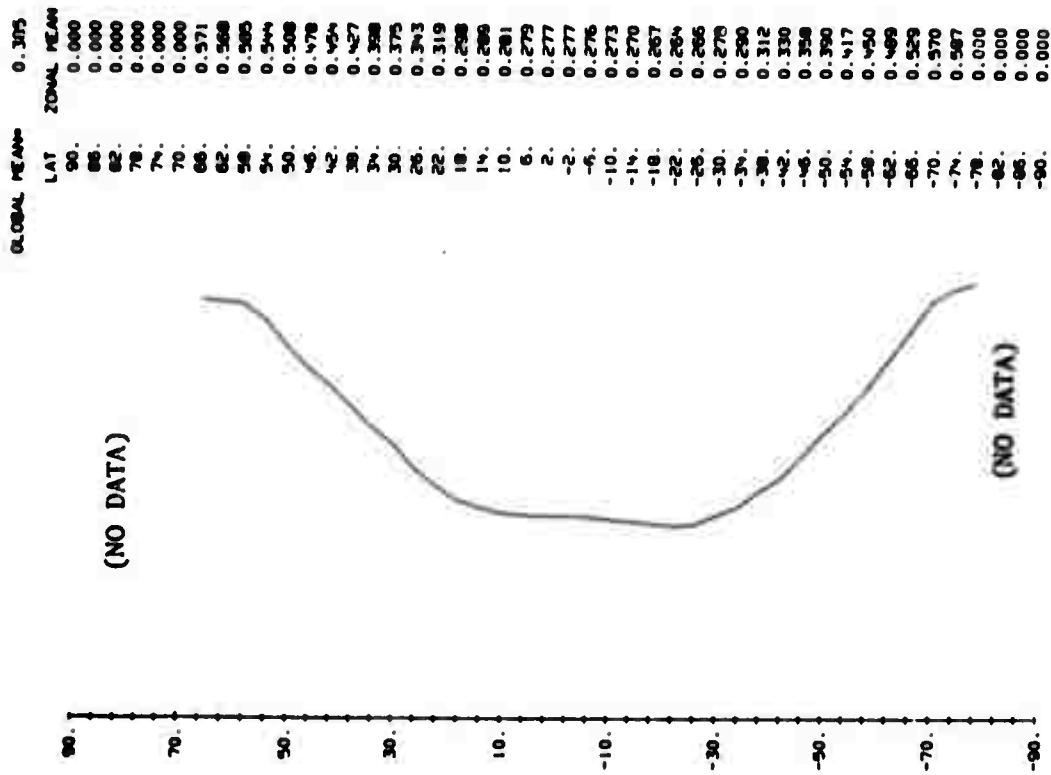


Fig. 4.4 -- Zonally averaged mean January planetary albedo (fractions), as found from the data of Fig. 3.4.

5. GLOBAL DATA TABULATIONS

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TABLE 5.1 JAN SEA-SURFACE TEMPERATURE (DEG C)

| | 0E | 5E | 10E | 15E | 20E | 25E | 30E | 35E | 40E | 45E | 50E | 55E | 60E | 65E | 70E | 75E | 80E | 85E |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 90N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 86N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 82N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 78N | -1.10 | -1.10 | -0.10 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 74N | 0.60 | 0.90 | 2.40 | 3.30 | 2.20 | 1.40 | 0.60 | 0.20 | -0.30 | -0.90 | I | I | I | I | I | I | I | I |
| 70N | 3.20 | 4.10 | 4.60 | 5.10 | I | I | I | I | 0.40 | -0.90 | I | I | I | I | I | I | I | I |
| 66N | 6.28 | 5.02 | 5.30 | I | I | I | I | I | 0.30 | I | I | I | I | I | I | I | I | I |
| 62N | 7.56 | 6.14 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 58N | 8.12 | 6.38 | 4.73 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 54N | 6.02 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 50N | 9.60 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 46N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 42N | 12.54 | 12.56 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 38N | 14.26 | 14.46 | 14.64 | 14.62 | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 34N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 30N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 26N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 22N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 18N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 14N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 10N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 6N | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 2N | 27.94 | 28.00 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 2S | 26.66 | 27.28 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 6S | 25.52 | 26.56 | 26.72 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 10S | 24.00 | 24.90 | 26.20 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 14S | 22.68 | 22.52 | 22.68 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 18S | 21.86 | 21.24 | 20.12 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 22S | 21.62 | 20.92 | 19.80 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 26S | 21.46 | 20.76 | 20.18 | I | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 30S | 21.10 | 20.60 | 20.20 | 18.60 | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 34S | 19.76 | 19.10 | 18.92 | 19.42 | I | I | I | I | I | I | I | I | I | I | I | I | I | I |
| 38S | 15.60 | 14.86 | 15.34 | 17.44 | 19.74 | 19.92 | 19.18 | 18.50 | 17.96 | 17.78 | 17.44 | 17.44 | 17.42 | 17.12 | 16.40 | 16.14 | 16.10 | 15.96 |
| 42S | 11.68 | 11.18 | 10.86 | 12.40 | 13.74 | 14.16 | 13.50 | 12.66 | 12.12 | 11.38 | 11.60 | 12.40 | 13.02 | 13.28 | 12.86 | 12.66 | 12.60 | 12.60 |

TABLE 5.2A ANNUAL PRECIPITATION (INCHES) (REVISION OF TABLE 5.6A OF SCHULTZ AND GATES, 1971)

| | 60W | 65W | 70W | 75W | 80W | 85W | 90W | 95W | 100W | 105W | 110W | 115W | 120W | 125W | 130W | 135W | 140W | 145W | 150W | 155W | 160W | 165W | 170W | 175W | 180W | 185W | 190W | 195W | 200W | 205W | 210W | 215W | 220W | 225W | 230W | 235W | 240W | 245W | 250W | 255W | 260W | 265W | 270W | 275W | 280W | 285W | 290W | 295W | 300W | 305W | 310W | 315W | 320W | 325W | 330W | 335W | 340W | 345W | 350W | 355W | 360W | 365W | 370W | 375W | 380W | 385W | 390W | 395W | 400W | 405W | 410W | 415W | 420W | 425W | 430W | 435W | 440W | 445W | 450W | 455W | 460W | 465W | 470W | 475W | 480W | 485W | 490W | 495W | 500W | 505W | 510W | 515W | 520W | 525W | 530W | 535W | 540W | 545W | 550W | 555W | 560W | 565W | 570W | 575W | 580W | 585W | 590W | 595W | 600W | 605W | 610W | 615W | 620W | 625W | 630W | 635W | 640W | 645W | 650W | 655W | 660W | 665W | 670W | 675W | 680W | 685W | 690W | 695W | 700W | 705W | 710W | 715W | 720W | 725W | 730W | 735W | 740W | 745W | 750W | 755W | 760W | 765W | 770W | 775W | 780W | 785W | 790W | 795W | 800W | 805W | 810W | 815W | 820W | 825W | 830W | 835W | 840W | 845W | 850W | 855W | 860W | 865W | 870W | 875W | 880W | 885W | 890W | 895W | 900W | 905W | 910W | 915W | 920W | 925W | 930W | 935W | 940W | 945W | 950W | 955W | 960W | 965W | 970W | 975W | 980W | 985W | 990W | 995W | 1000W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| 60W | 0.31 | 0.35 | 0.40 | 0.45 | 0.50 | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.80 | 0.85 | 0.90 | 0.95 | 1.00 | 1.05 | 1.10 | 1.15 | 1.20 | 1.25 | 1.30 | 1.35 | 1.40 | 1.45 | 1.50 | 1.55 | 1.60 | 1.65 | 1.70 | 1.75 | 1.80 | 1.85 | 1.90 | 1.95 | 2.00 | 2.05 | 2.10 | 2.15 | 2.20 | 2.25 | 2.30 | 2.35 | 2.40 | 2.45 | 2.50 | 2.55 | 2.60 | 2.65 | 2.70 | 2.75 | 2.80 | 2.85 | 2.90 | 2.95 | 3.00 | 3.05 | 3.10 | 3.15 | 3.20 | 3.25 | 3.30 | 3.35 | 3.40 | 3.45 | 3.50 | 3.55 | 3.60 | 3.65 | 3.70 | 3.75 | 3.80 | 3.85 | 3.90 | 3.95 | 4.00 | 4.05 | 4.10 | 4.15 | 4.20 | 4.25 | 4.30 | 4.35 | 4.40 | 4.45 | 4.50 | 4.55 | 4.60 | 4.65 | 4.70 | 4.75 | 4.80 | 4.85 | 4.90 | 4.95 | 5.00 | 5.05 | 5.10 | 5.15 | 5.20 | 5.25 | 5.30 | 5.35 | 5.40 | 5.45 | 5.50 | 5.55 | 5.60 | 5.65 | 5.70 | 5.75 | 5.80 | 5.85 | 5.90 | 5.95 | 6.00 | 6.05 | 6.10 | 6.15 | 6.20 | 6.25 | 6.30 | 6.35 | 6.40 | 6.45 | 6.50 | 6.55 | 6.60 | 6.65 | 6.70 | 6.75 | 6.80 | 6.85 | 6.90 | 6.95 | 7.00 | 7.05 | 7.10 | 7.15 | 7.20 | 7.25 | 7.30 | 7.35 | 7.40 | 7.45 | 7.50 | 7.55 | 7.60 | 7.65 | 7.70 | 7.75 | 7.80 | 7.85 | 7.90 | 7.95 | 8.00 | 8.05 | 8.10 | 8.15 | 8.20 | 8.25 | 8.30 | 8.35 | 8.40 | 8.45 | 8.50 | 8.55 | 8.60 | 8.65 | 8.70 | 8.75 | 8.80 | 8.85 | 8.90 | 8.95 | 9.00 | 9.05 | 9.10 | 9.15 | 9.20 | 9.25 | 9.30 | 9.35 | 9.40 | 9.45 | 9.50 | 9.55 | 9.60 | 9.65 | 9.70 | 9.75 | 9.80 | 9.85 | 9.90 | 9.95 | 10.00 | 10.05 | 10.10 | 10.15 | 10.20 | 10.25 | 10.30 | 10.35 | 10.40 | 10.45 | 10.50 | 10.55 | 10.60 | 10.65 | 10.70 | 10.75 | 10.80 | 10.85 | 10.90 | 10.95 | 11.00 | 11.05 | 11.10 | 11.15 | 11.20 | 11.25 | 11.30 | 11.35 | 11.40 | 11.45 | 11.50 | 11.55 | 11.60 | 11.65 | 11.70 | 11.75 | 11.80 | 11.85 | 11.90 | 11.95 | 12.00 | 12.05 | 12.10 | 12.15 | 12.20 | 12.25 | 12.30 | 12.35 | 12.40 | 12.45 | 12.50 | 12.55 | 12.60 | 12.65 | 12.70 | 12.75 | 12.80 | 12.85 | 12.90 | 12.95 | 13.00 | 13.05 | 13.10 | 13.15 | 13.20 | 13.25 | 13.30 | 13.35 | 13.40 | 13.45 | 13.50 | 13.55 | 13.60 | 13.65 | 13.70 | 13.75 | 13.80 | 13.85 | 13.90 | 13.95 | 14.00 | 14.05 | 14.10 | 14.15 | 14.20 | 14.25 | 14.30 | 14.35 | 14.40 | 14.45 | 14.50 | 14.55 | 14.60 | 14.65 | 14.70 | 14.75 | 14.80 | 14.85 | 14.90 | 14.95 | 15.00 | 15.05 | 15.10 | 15.15 | 15.20 | 15.25 | 15.30 | 15.35 | 15.40 | 15.45 | 15.50 | 15.55 | 15.60 | 15.65 | 15.70 | 15.75 | 15.80 | 15.85 | 15.90 | 15.95 | 16.00 | 16.05 | 16.10 | 16.15 | 16.20 | 16.25 | 16.30 | 16.35 | 16.40 | 16.45 | 16.50 | 16.55 | 16.60 | 16.65 | 16.70 | 16.75 | 16.80 | 16.85 | 16.90 | 16.95 | 17.00 | 17.05 | 17.10 | 17.15 | 17.20 | 17.25 | 17.30 | 17.35 | 17.40 | 17.45 | 17.50 | 17.55 | 17.60 | 17.65 | 17.70 | 17.75 | 17.80 | 17.85 | 17.90 | 17.95 | 18.00 | 18.05 | 18.10 | 18.15 | 18.20 | 18.25 | 18.30 | 18.35 | 18.40 | 18.45 | 18.50 | 18.55 | 18.60 | 18.65 | 18.70 | 18.75 | 18.80 | 18.85 | 18.90 | 18.95 | 19.00 | 19.05 | 19.10 | 19.15 | 19.20 | 19.25 | 19.30 | 19.35 | 19.40 | 19.45 | 19.50 | 19.55 | 19.60 | 19.65 | 19.70 | 19.75 | 19.80 | 19.85 | 19.90 | 19.95 | 20.00 | 20.05 | 20.10 | 20.15 | 20.20 | 20.25 | 20.30 | 20.35 | 20.40 | 20.45 | 20.50 | 20.55 | 20.60 | 20.65 | 20.70 | 20.75 | 20.80 | 20.85 | 20.90 | 20.95 | 21.00 | 21.05 | 21.10 | 21.15 | 21.20 | 21.25 | 21.30 | 21.35 | 21.40 | 21.45 | 21.50 | 21.55 | 21.60 | 21.65 | 21.70 | 21.75 | 21.80 | 21.85 | 21.90 | 21.95 | 22.00 | 22.05 | 22.10 | 22.15 | 22.20 | 22.25 | 22.30 | 22.35 | 22.40 | 22.45 | 22.50 | 22.55 | 22.60 | 22.65 | 22.70 | 22.75 | 22.80 | 22.85 | 22.90 | 22.95 | 23.00 | 23.05 | 23.10 | 23.15 | 23.20 | 23.25 | 23.30 | 23.35 | 23.40 | 23.45 | 23.50 | 23.55 | 23.60 | 23.65 | 23.70 | 23.75 | 23.80 | 23.85 | 23.90 | 23.95 | 24.00 | 24.05 | 24.10 | 24.15 | 24.20 | 24.25 | 24.30 | 24.35 | 24.40 | 24.45 | 24.50 | 24.55 | 24.60 | 24.65 | 24.70 | 24.75 | 24.80 | 24.85 | 24.90 | 24.95 | 25.00 | 25.05 | 25.10 | 25.15 | 25.20 | 25.25 | 25.30 | 25.35 | 25.40 | 25.45 | 25.50 | 25.55 | 25.60 | 25.65 | 25.70 | 25.75 | 25.80 | 25.85 | 25.90 | 25.95 | 26.00 | 26.05 | 26.10 | 26.15 | 26.20 | 26.25 | 26.30 | 26.35 | 26.40 | 26.45 | 26.50 | 26.55 | 26.60 | 26.65 | 26.70 | 26.75 | 26.80 | 26.85 | 26.90 | 26.95 | 27.00 | 27.05 | 27.10 | 27.15 | 27.20 | 27.25 | 27.30 | 27.35 | 27.40 | 27.45 | 27.50 | 27.55 | 27.60 | 27.65 | 27.70 | 27.75 | 27.80 | 27.85 | 27.90 | 27.95 | 28.00 | 28.05 | 28.10 | 28.15 | 28.20 | 28.25 | 28.30 | 28.35 | 28.40 | 28.45 | 28.50 | 28.55 | 28.60 | 28.65 | 28.70 | 28.75 | 28.80 | 28.85 | 28.90 | 28.95 | 29.00 | 29.05 | 29.10 | 29.15 | 29.20 | 29.25 | 29.30 | 29.35 | 29.40 | 29.45 | 29.50 | 29.55 | 29.60 | 29.65 | 29.70 | 29.75 | 29.80 | 29.85 | 29.90 | 29.95 | 30.00 | 30.05 | 30.10 | 30.15 | 30.20 | 30.25 | 30.30 | 30.35 | 30.40 | 30.45 | 30.50 | 30.55 | 30.60 | 30.65 | 30.70 | 30.75 | 30.80 | 30.85 | 30.90 | 30.95 | 31.00 | 31.05 | 31.10 | 31.15 | 31.20 | 31.25 | 31.30 | 31.35 | 31.40 | 31.45 | 31.50 | 31.55 | 31.60 | 31.65 | 31.70 | 31.75 | 31.80 | 31.85 | 31.90 | 31.95 | 32.00 | 32.05 | 32.10 | 32.15 | 32.20 | 32.25 | 32.30 | 32.35 | 32.40 | 32.45 | 32.50 | 32.55 | 32.60 | 32.65 | 32.70 | 32.75 | 32.80 | 32.85 | 32.90 | 32.95 | 33.00 | 33.05 | 33.10 | 33.15 | 33.20 | 33.25 | 33.30 | 33.35 | 33.40 | 33.45 | 33.50 | 33.55 | 33.60 | 33.65 | 33.70 | 33.75 | 33.80 | 33.85 | 33.90 | 33.95 | 34.00 | 34.05 | 34.10 | 34.15 | 34.20 | 34.25 | 34.30 | 34.35 | 34.40 | 34.45 | 34.50 | 34.55 | 34.60 | 34.65 | 34.70 | 34.75 | 34.80 | 34.85 | 34.90 | 34.95 | 35.00 | 35.05 | 35.10 | 35.15 | 35.20 | 35.25 | 35.30 | 35.35 | 35.40 | 35.45 | 35.50 | 35.55 | 35.60 | 35.65 | 35.70 | 35.75 | 35.80 | 35.85 | 35.90 | 35.95 | 36.00 | 36.05 | 36.10 | 36.15 | 36.20 | 36.25 | 36.30 | 36.35 | 36.40 | 36.45 | 36.50 | 36.55 | 36.60 | 36.65 | 36.70 | 36.75 | 36.80 | 36.85 | 36.90 | 36.95 | 37.00 | 37.05 | 37.10 | 37.15 | 37.20 | 37.25 | 37.30 | 37.35 | 37.40 | 37.45 | 37.50 | 37.55 | 37.60 | 37.65 | 37.70 | 37.75 | 37.80 | 37.85 | 37.90 | 37.95 | 38.00 | 38.05 | 38.10 | 38.15 | 38.20 | 38.25 | 38.30 | 38.35 | 38.40 | 38.45 | 38.50 | 38.55 | 38.60 | 38.65 | 38.70 | 38.75 | 38.80 | 38.85 | 38.90 | 38.95 | 39.00 | 39.05 | 39.10 | 39.15 | 39.20 | 39.25 | 39.30 | 39.35 | 39.40 | 39.45 | 39.50 | 39.55 | 39.60 | 39.65 | 39.70 | 39.75 | 39.80 | 39.85 | 39.90 | 39.95 | 40.00 | 40.05 | 40.10 | 40.15 | 40.20 | 40.25 | 40.30 | 40.35 | 40.40 | 40.45 | 40.50 | 40.55 | 40.60 | 40.65 | 40.70 | 40.75 | 40.80 | 40.85 | 40.90 | 40.95 | 41.00 | 41.05 | 41.10 | 41.15 | 41.20 | 41.25 | 41.30 | 41.35 | 41.40 | 41.45 | 41.50 | 41.55 | 41.60 | 41.65 | 41.70 | 41.75 | 41.80 | 41.85 | 41.90 | 41.95 | 42.00 | 42.05 | 42.10 | 42.15 | 42.20 | 42.25 | 42.30 | 42.35 | 42.40 | 42.45 | 42.50 | 42.55 | 42.60 | 42.65 | 42.70 | 42.75 | 42.80 | 42.85 | 42.90 | 42.95 | 43.00 | 43.05 | 43.10 | 43.15 | 43.20 | 43.25 | 43.30 | 43.35 | 43.40 | 43.45 | 43.50 | 43.55 | 43.60 | 43.65 | 43.70 | 43.75 | 43.80 | 43.85 | 43.90 | 43.95 | 44.00 | 44.05 | 44.10 | 44.15 | 44.20 | 44.25 | 44.30 | 44.35 | 44.40 | 44.45 | 44.50 | 44.55 | 44.60 | 44.65 | 44.70 | 44.75 | 44.80 | 44.85 | 44.90 | 44.95 | 45.00 | 45.05 | 45.10 | 45.15 | 45.20 | 45.25 | 45.30 | 45.35 | 45.40 | 45.45 | 45.50 | 45.55 | 45.60 | 45.65 | 45.70 | 45.75 | 45.80 | 45.85 | 45.90 | 45.95 | 46.00 | 46.05 | 46.10 | 46.15 | 46.20 | 46.25 | 46.30 | 46.35 | 46.40 | 46.45 | 46.50 | 46.55 | 46.60 | 46.65 | 46.70 | 46.75 | 46.80 | 46.85 | 46.90 | 46.95 | 47.00 | 47.05 | 47.10 | 47.15 | 47.20 | 47.25 | 47.30 | 47.35 | 47.40 | 47.45 | 47.50 | 47.55 | 47.60 | 47.65 | 47.70 | 47.75 | 47.80 | 47.85 | 47.90 | 47.95 | 48.00 | 48.05 | 48.10 | 48.15 | 48.20 | 48.25 | 48.30 | 48.35 | 48.40 | 48.45 | 48.50 | 48.55 | 48.60 | 48.65 | 48.70 | 48.75 | 48.80 | 48.85 | 48.90 | 48.95 | 49.00 | 49.05 | 49.10 | 49.15 | 49.20 | 49.25 | 49.30 | 49.35 | 49.40 | 49.45 | 49.50 | 49.55 | 49.60 | 49.65 | 49.70 | 49.75 | 49.80 | 49.85 | 49.90 | 49.95 | 50.00 | 50.05 | 50.10 | 50.15 | 50.20 | 50.25 | 50.30 | 50.35 | 50.40 | 50.45 | 50.50 | 50.55 | 50.60 | 50.65 | 50.70 | 50.75 | 50.80 | 50.85 | 50.90 | 50.95 | 51.00 | 51.05 | 51.10 | 51.15 | 51.20 | 51.25 | 51.30 | 51.35 | 51.40 | 51.45 | 51.50 | 51.55 | 51.60 | 51.65 | 51.70 | 51.75 | 51.80 | 51.85 | 51.90 | 51.95 | 52.00 | 52.05 | 52.10 | 52.15 | 52.20 | 52.25 | 52.30 | 52.35 | 52.40 | 52.45 | 52.50 | 52.55 | 52.60 | 52.65 | 52.70 | 52.75 | 52.80 | 52.85 | 52.90 | 52.95 | 53.00 | 53.05 | 53.10 | 53.15 | 53.20 | 53.25 | 53.30 | 53.35 | 53.40 | 53.45 | 53.50 | 53.55 | 53.60 | 53.65 | 53.70 | 53.75 | 53.80 | 53.85</ |

TABLE 5.2A ANNUAL PRECIPITATION (INCHES) (REVISION OF TABLE 5.1A OF SCOTT AND GATES, 1971)

| | 05 | 55 | 105 | 155 | 205 | 255 | 305 | 355 | 405 | 455 | 505 | 555 | 605 | 655 | 705 | 755 | 805 | 855 |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 000 | 0.31 | 0.30 | 0.40 | 0.61 | 0.62 | 0.63 | 0.63 | 0.62 | 0.60 | 0.50 | 0.37 | 0.26 | 0.16 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 |
| 005 | 0.54 | 0.76 | 0.98 | 1.00 | 0.81 | 0.67 | 0.61 | 0.77 | 0.73 | 0.64 | 0.63 | 0.62 | 0.62 | 0.62 | 0.61 | 0.61 | 0.59 | 0.59 |
| 010 | 0.83 | 0.99 | 1.01 | 1.04 | 1.04 | 1.04 | 1.02 | 0.97 | 0.93 | 0.83 | 0.79 | 0.72 | 0.66 | 0.64 | 0.63 | 0.64 | 0.63 | 0.62 |
| 015 | 1.31 | 1.38 | 1.40 | 1.34 | 1.53 | 1.24 | 1.24 | 1.19 | 1.17 | 1.00 | 0.90 | 0.82 | 0.67 | 0.67 | 0.69 | 0.71 | 0.75 | 0.75 |
| 020 | 2.05 | 2.07 | 2.03 | 1.78 | 2.74 | 1.34 | 1.37 | 1.34 | 1.34 | 1.12 | 0.93 | 0.79 | 0.60 | 0.60 | 0.79 | 0.92 | 1.12 | 1.10 |
| 025 | 2.78 | 2.63 | 2.69 | 1.73 | 1.45 | 1.49 | 1.30 | 1.20 | 1.31 | 1.32 | 1.20 | 1.20 | 1.23 | 1.21 | 1.24 | 1.29 | 1.38 | 1.29 |
| 030 | 4.28 | 4.30 | 2.40 | 1.53 | 1.40 | 1.30 | 1.34 | 1.04 | 1.51 | 1.05 | 1.42 | 1.30 | 1.37 | 1.36 | 1.32 | 1.39 | 1.37 | 1.37 |
| 035 | 2.95 | 4.12 | 2.40 | 1.53 | 1.40 | 1.67 | 1.03 | 1.79 | 1.53 | 1.05 | 1.41 | 1.32 | 1.37 | 1.27 | 1.19 | 1.22 | 1.14 | 1.38 |
| 040 | 2.24 | 2.12 | 2.14 | 1.01 | 2.19 | 2.04 | 1.00 | 1.40 | 1.32 | 1.24 | 1.23 | 1.21 | 1.23 | 0.88 | 0.94 | 0.93 | 0.79 | 1.32 |
| 045 | 2.88 | 2.26 | 2.19 | 2.19 | 2.74 | 1.71 | 1.37 | 1.37 | 1.10 | 0.70 | 0.67 | 0.40 | 0.40 | 0.52 | 0.48 | 0.92 | 0.48 | 2.05 |
| 050 | 2.06 | 2.03 | 2.03 | 2.03 | 2.52 | 1.44 | 1.15 | 1.15 | 2.01 | 0.69 | 0.46 | 0.38 | 0.37 | 0.32 | 0.50 | 0.55 | 1.70 | 0.90 |
| 055 | 1.44 | 1.91 | 1.92 | 2.75 | 2.05 | 1.55 | 1.26 | 1.10 | 1.93 | 1.10 | 0.49 | 0.30 | 0.20 | 0.27 | 1.04 | 0.34 | 0.91 | 0.23 |
| 060 | 1.37 | 1.10 | 1.10 | 2.11 | 2.10 | 1.53 | 1.26 | 1.40 | 1.04 | 1.37 | 0.40 | 0.40 | 0.34 | 0.07 | 1.38 | 0.38 | 0.24 | 0.27 |
| 065 | 1.12 | 0.57 | 0.56 | 0.90 | 0.92 | 1.12 | 0.90 | 1.07 | 0.65 | 1.16 | 0.40 | 0.38 | 0.52 | 1.21 | 1.24 | 0.71 | 1.04 | 0.40 |
| 070 | 0.14 | 0.12 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.07 | 0.22 | 0.40 | 0.70 | 0.40 | 0.40 | 0.42 | 1.37 | 0.40 | 1.37 |
| 075 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.04 | 0.04 | 0.12 | 0.25 | 0.18 | 0.30 | 0.36 | 0.50 | 0.50 | 2.47 | 2.44 | 2.30 | 0.11 |
| 080 | 0.14 | 0.16 | 0.10 | 0.00 | 0.00 | 0.04 | 0.04 | 0.04 | 0.24 | 0.15 | 0.11 | 0.19 | 0.63 | 1.04 | 1.71 | 2.32 | 2.95 | 0.97 |
| 085 | 0.53 | 0.54 | 0.44 | 0.31 | 0.34 | 0.32 | 0.32 | 0.50 | 0.40 | 0.19 | 0.13 | 0.27 | 0.66 | 1.93 | 2.01 | 2.32 | 2.95 | 3.09 |
| 090 | 1.53 | 1.40 | 1.41 | 1.04 | 1.09 | 1.10 | 0.90 | 1.40 | 0.90 | 0.36 | 0.32 | 0.55 | 1.52 | 3.07 | 3.94 | 3.94 | 2.76 | 0.99 |
| 095 | 3.31 | 3.40 | 3.42 | 2.73 | 2.73 | 2.74 | 2.05 | 2.00 | 2.05 | 0.40 | 0.40 | 1.37 | 3.10 | 4.14 | 4.11 | 4.09 | 2.74 | 4.11 |
| 100 | 2.09 | 7.35 | 5.42 | 3.03 | 3.72 | 3.04 | 3.04 | 2.19 | 1.51 | 0.32 | 0.97 | 3.01 | 4.05 | 5.21 | 5.10 | 5.15 | 3.00 | 0.13 |
| 105 | 2.29 | 4.79 | 5.79 | 4.03 | 4.00 | 4.27 | 3.70 | 2.19 | 1.04 | 1.75 | 2.90 | 5.74 | 5.40 | 6.04 | 5.90 | 5.04 | 5.33 | 5.42 |
| 110 | 1.47 | 1.72 | 3.07 | 3.75 | 5.21 | 4.27 | 3.54 | 2.47 | 1.04 | 3.53 | 4.00 | 6.10 | 6.10 | 6.59 | 6.01 | 6.01 | 6.57 | 6.77 |
| 115 | 0.59 | 0.41 | 1.13 | 3.30 | 4.45 | 3.04 | 2.70 | 2.25 | 3.29 | 5.03 | 5.34 | 6.10 | 6.43 | 6.40 | 6.01 | 6.07 | 7.14 | 7.29 |
| 120 | 0.22 | 0.21 | 0.23 | 1.00 | 4.10 | 2.74 | 3.01 | 3.01 | 2.74 | 5.31 | 5.31 | 5.01 | 3.93 | 5.97 | 4.41 | 4.52 | 6.44 | 6.52 |
| 125 | 0.37 | 0.37 | 0.17 | 0.17 | 2.99 | 2.73 | 2.52 | 2.05 | 2.74 | 4.39 | 4.39 | 5.00 | 4.02 | 5.03 | 5.17 | 5.09 | 5.77 | 5.74 |
| 130 | 0.50 | 0.42 | 0.10 | 1.71 | 1.90 | 1.90 | 1.05 | 2.05 | 2.00 | 3.79 | 4.03 | 4.10 | 3.03 | 3.81 | 3.79 | 3.99 | 3.00 | 3.83 |
| 135 | 1.00 | 0.76 | 0.34 | 0.67 | 1.03 | 1.30 | 1.07 | 2.05 | 1.44 | 2.47 | 4.00 | 3.33 | 2.03 | 2.05 | 2.74 | 2.44 | 2.51 | 2.53 |
| 140 | 1.77 | 1.22 | 0.47 | 0.16 | 0.53 | 1.42 | 2.52 | 2.05 | 1.08 | 1.99 | 3.04 | 2.59 | 2.92 | 2.93 | 2.10 | 2.93 | 2.05 | 1.79 |
| 145 | 2.51 | 1.99 | 1.14 | 0.23 | 0.44 | 2.74 | 2.74 | 3.01 | 2.05 | 1.71 | 2.05 | 2.22 | 2.45 | 2.00 | 2.03 | 2.93 | 2.03 | 2.04 |
| 150 | 3.70 | 2.92 | 2.57 | 2.54 | 1.73 | 2.44 | 3.10 | 3.10 | 2.70 | 2.51 | 2.53 | 2.59 | 2.45 | 2.30 | 2.35 | 2.35 | 2.32 | 2.30 |
| 155 | 3.75 | 3.54 | 3.54 | 3.40 | 3.15 | 3.54 | 3.00 | 3.77 | 3.57 | 3.29 | 3.01 | 2.93 | 2.04 | 2.19 | 2.79 | 2.81 | 2.93 | 3.04 |
| 160 | 4.34 | 4.25 | 4.15 | 4.00 | 4.07 | 4.20 | 4.20 | 4.20 | 4.00 | 3.93 | 3.72 | 3.42 | 3.33 | 3.24 | 3.27 | 3.97 | 3.62 | 3.71 |
| 165 | 4.43 | 4.44 | 4.44 | 4.43 | 4.34 | 4.32 | 4.30 | 4.20 | 4.23 | 4.10 | 4.15 | 4.12 | 3.70 | 3.62 | 3.64 | 3.99 | 4.12 | 4.14 |
| 170 | 4.46 | 4.32 | 4.34 | 4.33 | 4.20 | 4.20 | 4.20 | 4.20 | 4.23 | 4.19 | 4.10 | 4.14 | 4.03 | 3.77 | 3.73 | 3.95 | 4.14 | 4.15 |
| 175 | 3.73 | 3.05 | 3.06 | 4.02 | 3.47 | 4.04 | 4.04 | 4.12 | 4.13 | 4.64 | 3.97 | 3.64 | 3.75 | 3.50 | 3.53 | 3.46 | 3.74 | 3.84 |
| 180 | 3.00 | 3.21 | 3.23 | 3.31 | 3.20 | 3.34 | 3.34 | 3.30 | 3.41 | 3.37 | 3.33 | 3.73 | 3.10 | 3.11 | 3.67 | 3.19 | 3.12 | 3.15 |
| 185 | 2.42 | 2.49 | 2.40 | 2.46 | 2.40 | 2.40 | 2.40 | 2.40 | 2.57 | 2.50 | 2.44 | 2.09 | 2.44 | 2.44 | 2.44 | 2.43 | 2.41 | 2.38 |
| 190 | 1.76 | 1.73 | 1.70 | 1.67 | 1.64 | 1.62 | 1.62 | 1.64 | 1.74 | 1.54 | 1.42 | 1.49 | 1.46 | 1.47 | 1.75 | 1.65 | 1.62 | 1.50 |
| 195 | 1.01 | 0.89 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.79 | 0.40 | 0.44 | 0.77 | 0.27 | 0.48 | 0.40 | 0.93 | 0.47 | 0.43 | 0.52 |
| 200 | 0.59 | 0.79 | 0.27 | 0.77 | 0.27 | 0.20 | 0.20 | 0.27 | 0.27 | 0.25 | 0.25 | 0.25 | 0.40 | 0.50 | 0.46 | 0.52 | 0.45 | 0.52 |
| 205 | 0.20 | 0.15 | 0.13 | 0.13 | 0.12 | 0.11 | 0.10 | 0.13 | 0.15 | 0.17 | 0.21 | 0.26 | 0.33 | 0.38 | 0.34 | 0.32 | 0.25 | 0.10 |
| 210 | 0.18 | 0.16 | 0.15 | 0.15 | 0.13 | 0.11 | 0.10 | 0.13 | 0.12 | 0.13 | 0.15 | 0.16 | 0.10 | 0.10 | 0.10 | 0.17 | 0.13 | 0.13 |
| 215 | 0.30 | 0.19 | 0.19 | 0.10 | 0.14 | 0.15 | 0.14 | 0.13 | 0.11 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |

TABLE 5.4 JAN PLANETARY ALBEDO (FRACTIONS)

| | 180W | 175W | 170W | 165W | 160W | 155W | 150W | 145W | -140W | 135W | 130W | 125W | 120W | 115W | 110W | 105W | 100W | 95W |
|-----|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|
| 90N | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 |
| 86N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.59 | 0.60 | 0.60 | 0.60 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 |
| 82N | 0.59 | 0.58 | 0.58 | 0.60 | 0.60 | 0.60 | 0.58 | 0.55 | 0.55 | 0.55 | 0.58 | 0.63 | 0.60 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 |
| 78N | 0.55 | 0.54 | 0.54 | 0.53 | 0.53 | 0.53 | 0.52 | 0.52 | 0.52 | 0.54 | 0.56 | 0.63 | 0.67 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 74N | | | | | | | | | | | | | | | | | | |
| 70N | | | | | | | | | | | | | | | | | | |
| 66N | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 | 0.60 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.60 | 0.60 |
| 62N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.59 | 0.60 | 0.60 | 0.60 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 |
| 58N | 0.59 | 0.58 | 0.58 | 0.60 | 0.60 | 0.60 | 0.58 | 0.55 | 0.55 | 0.55 | 0.58 | 0.63 | 0.60 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 |
| 54N | 0.55 | 0.54 | 0.54 | 0.53 | 0.53 | 0.53 | 0.52 | 0.52 | 0.52 | 0.54 | 0.56 | 0.63 | 0.67 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 50N | 0.50 | 0.49 | 0.49 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.50 | 0.52 | 0.56 | 0.59 | 0.59 | 0.58 | 0.58 | 0.58 | 0.59 |
| 46N | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.47 | 0.49 | 0.50 | 0.52 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| 42N | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.43 | 0.43 | 0.44 | 0.45 | 0.46 | 0.47 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.51 |
| 38N | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.41 | 0.41 | 0.41 | 0.42 | 0.43 | 0.44 | 0.45 | 0.45 | 0.46 | 0.47 | 0.47 | 0.47 |
| 34N | 0.35 | 0.35 | 0.35 | 0.36 | 0.36 | 0.37 | 0.38 | 0.39 | 0.40 | 0.40 | 0.41 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.41 | 0.42 |
| 30N | 0.33 | 0.33 | 0.33 | 0.33 | 0.34 | 0.35 | 0.35 | 0.35 | 0.37 | 0.38 | 0.40 | 0.40 | 0.40 | 0.38 | 0.37 | 0.38 | 0.39 | 0.40 |
| 26N | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.31 | 0.32 | 0.33 | 0.35 | 0.35 | 0.35 | 0.35 | 0.33 | 0.33 | 0.34 | 0.35 | 0.35 |
| 22N | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.30 | 0.30 | 0.31 | 0.32 | 0.32 | 0.32 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |
| 18N | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.27 | 0.27 | 0.27 | 0.28 | 0.29 | 0.29 | 0.28 | 0.27 | 0.27 | 0.26 | 0.25 | 0.25 | 0.25 |
| 14N | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 | 0.28 | 0.27 | 0.25 | 0.25 | 0.26 | 0.27 | 0.26 | 0.25 | 0.25 | 0.25 | 0.24 | 0.22 | 0.22 |
| 10N | 0.31 | 0.31 | 0.30 | 0.29 | 0.27 | 0.26 | 0.25 | 0.24 | 0.24 | 0.25 | 0.25 | 0.24 | 0.23 | 0.22 | 0.21 | 0.20 | 0.20 | 0.20 |
| 6N | 0.35 | 0.33 | 0.30 | 0.29 | 0.27 | 0.25 | 0.24 | 0.23 | 0.22 | 0.22 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 |
| 2N | 0.35 | 0.34 | 0.30 | 0.29 | 0.27 | 0.25 | 0.25 | 0.22 | 0.21 | 0.20 | 0.20 | 0.19 | 0.19 | 0.17 | 0.16 | 0.15 | 0.17 | 0.19 |
| 2S | 0.35 | 0.33 | 0.30 | 0.29 | 0.27 | 0.25 | 0.24 | 0.23 | 0.21 | 0.19 | 0.19 | 0.18 | 0.18 | 0.17 | 0.16 | 0.16 | 0.17 | 0.19 |
| 6S | 0.35 | 0.32 | 0.30 | 0.29 | 0.27 | 0.26 | 0.25 | 0.23 | 0.21 | 0.20 | 0.19 | 0.18 | 0.18 | 0.17 | 0.16 | 0.16 | 0.17 | 0.19 |
| 10S | 0.32 | 0.30 | 0.30 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.22 | 0.20 | 0.20 | 0.19 | 0.19 | 0.18 | 0.17 | 0.17 | 0.17 | 0.18 |
| 14S | 0.30 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.22 | 0.21 | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | 0.19 |
| 18S | 0.30 | 0.30 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.25 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.22 | 0.20 | 0.20 | 0.20 | 0.20 |
| 22S | 0.29 | 0.28 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.24 | 0.22 | 0.20 | 0.20 |
| 26S | 0.26 | 0.26 | 0.27 | 0.27 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.25 |
| 30S | 0.25 | 0.26 | 0.27 | 0.28 | 0.29 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.29 |
| 34S | 0.25 | 0.25 | 0.28 | 0.29 | 0.30 | 0.31 | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.33 | 0.33 | 0.33 | 0.32 | 0.31 |
| 38S | 0.27 | 0.28 | 0.29 | 0.30 | 0.31 | 0.32 | 0.33 | 0.34 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 |
| 42S | 0.29 | 0.29 | 0.30 | 0.31 | 0.32 | 0.33 | 0.34 | 0.35 | 0.36 | 0.36 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 |
| 46S | 0.32 | 0.32 | 0.32 | 0.33 | 0.34 | 0.35 | 0.35 | 0.36 | 0.37 | 0.38 | 0.39 | 0.39 | 0.39 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| 50S | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.37 | 0.38 | 0.38 | 0.39 | 0.40 | 0.41 | 0.41 | 0.42 | 0.42 | 0.42 | 0.43 | 0.42 | 0.42 |
| 54S | 0.40 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.40 | 0.40 | 0.41 | 0.42 | 0.43 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| 58S | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.42 | 0.43 | 0.43 | 0.44 | 0.45 | 0.45 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 |
| 62S | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.46 | 0.46 | 0.47 | 0.47 | 0.48 | 0.48 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.50 |
| 66S | 0.51 | 0.51 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.51 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.52 |
| 70S | 0.55 | 0.55 | 0.54 | 0.54 | 0.54 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 |
| 74S | 0.58 | 0.57 | 0.57 | 0.56 | 0.56 | 0.56 | 0.56 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.57 | 0.57 | 0.58 | 0.59 |
| 78S | | | | | | | | | | | | | | | | | | |
| 82S | | | | | | | | | | | | | | | | | | |
| 86S | | | | | | | | | | | | | | | | | | |
| 90S | | | | | | | | | | | | | | | | | | |

TABLE 5.4 JAN PLANETARY ALBEDO (FRACTIONS)

| | 90W | 85W | 80W | 75W | 70W | 65W | 60W | 55W | 50W | 45W | 40W | 35W | 30W | 25W | 20W | 15W | 10W | 5W |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 90N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 86N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 82N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 78N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 74N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 70N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 66N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 62N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 58N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 54N | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 50N | 0.59 | 0.58 | 0.55 | 0.55 | 0.55 | 0.54 | 0.53 | 0.52 | 0.50 | 0.50 | 0.50 | 0.49 | 0.48 | 0.48 | 0.47 | 0.47 | 0.47 | 0.47 |
| 46N | 0.54 | 0.53 | 0.52 | 0.52 | 0.51 | 0.50 | 0.49 | 0.48 | 0.47 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| 42N | 0.50 | 0.50 | 0.50 | 0.49 | 0.48 | 0.47 | 0.46 | 0.45 | 0.44 | 0.43 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
| 38N | 0.46 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.42 | 0.41 | 0.40 | 0.40 | 0.39 | 0.39 | 0.38 | 0.38 | 0.38 | 0.38 | 0.39 | 0.39 |
| 34N | 0.43 | 0.43 | 0.42 | 0.41 | 0.40 | 0.40 | 0.40 | 0.38 | 0.37 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.36 | 0.36 | 0.37 |
| 30N | 0.40 | 0.40 | 0.40 | 0.39 | 0.39 | 0.38 | 0.37 | 0.35 | 0.35 | 0.33 | 0.32 | 0.31 | 0.31 | 0.31 | 0.32 | 0.33 | 0.35 | 0.35 |
| 26N | 0.35 | 0.35 | 0.34 | 0.35 | 0.35 | 0.35 | 0.34 | 0.32 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.30 | 0.32 | 0.33 | 0.35 |
| 22N | 0.30 | 0.30 | 0.30 | 0.30 | 0.32 | 0.33 | 0.32 | 0.30 | 0.29 | 0.29 | 0.28 | 0.27 | 0.26 | 0.26 | 0.29 | 0.30 | 0.32 | 0.34 |
| 18N | 0.25 | 0.27 | 0.28 | 0.30 | 0.32 | 0.33 | 0.31 | 0.30 | 0.29 | 0.28 | 0.26 | 0.25 | 0.24 | 0.25 | 0.25 | 0.30 | 0.32 | 0.33 |
| 14N | 0.23 | 0.25 | 0.28 | 0.30 | 0.33 | 0.34 | 0.32 | 0.30 | 0.29 | 0.28 | 0.26 | 0.25 | 0.24 | 0.25 | 0.25 | 0.30 | 0.32 | 0.33 |
| 10N | 0.22 | 0.25 | 0.28 | 0.31 | 0.35 | 0.35 | 0.35 | 0.30 | 0.29 | 0.28 | 0.26 | 0.24 | 0.22 | 0.21 | 0.20 | 0.24 | 0.28 | 0.30 |
| 6N | 0.20 | 0.25 | 0.28 | 0.34 | 0.37 | 0.38 | 0.36 | 0.34 | 0.30 | 0.29 | 0.26 | 0.24 | 0.22 | 0.21 | 0.20 | 0.24 | 0.26 | 0.29 |
| 2N | 0.20 | 0.25 | 0.29 | 0.35 | 0.40 | 0.40 | 0.38 | 0.36 | 0.35 | 0.30 | 0.27 | 0.25 | 0.22 | 0.20 | 0.20 | 0.24 | 0.25 | 0.28 |
| 2S | 0.20 | 0.25 | 0.29 | 0.35 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.39 | 0.30 | 0.28 | 0.22 | 0.19 | 0.18 | 0.20 | 0.22 | 0.26 |
| 6S | 0.20 | 0.24 | 0.30 | 0.35 | 0.42 | 0.46 | 0.42 | 0.40 | 0.41 | 0.35 | 0.30 | 0.26 | 0.21 | 0.18 | 0.17 | 0.20 | 0.20 | 0.25 |
| 10S | 0.20 | 0.24 | 0.30 | 0.35 | 0.40 | 0.45 | 0.43 | 0.42 | 0.41 | 0.39 | 0.31 | 0.26 | 0.20 | 0.18 | 0.17 | 0.16 | 0.20 | 0.24 |
| 14S | 0.20 | 0.24 | 0.30 | 0.35 | 0.40 | 0.42 | 0.42 | 0.42 | 0.42 | 0.38 | 0.32 | 0.26 | 0.20 | 0.18 | 0.17 | 0.16 | 0.16 | 0.22 |
| 18S | 0.20 | 0.24 | 0.30 | 0.35 | 0.39 | 0.40 | 0.40 | 0.40 | 0.40 | 0.39 | 0.30 | 0.26 | 0.20 | 0.19 | 0.17 | 0.16 | 0.18 | 0.21 |
| 22S | 0.21 | 0.25 | 0.30 | 0.34 | 0.35 | 0.37 | 0.37 | 0.36 | 0.36 | 0.35 | 0.30 | 0.26 | 0.22 | 0.20 | 0.19 | 0.17 | 0.17 | 0.20 |
| 26S | 0.25 | 0.26 | 0.29 | 0.32 | 0.30 | 0.31 | 0.33 | 0.32 | 0.32 | 0.33 | 0.30 | 0.27 | 0.25 | 0.23 | 0.20 | 0.20 | 0.21 | 0.22 |
| 30S | 0.28 | 0.27 | 0.29 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.31 | 0.31 | 0.30 | 0.29 | 0.27 | 0.26 | 0.25 | 0.25 | 0.25 |
| 34S | 0.30 | 0.30 | 0.30 | 0.31 | 0.30 | 0.29 | 0.27 | 0.26 | 0.26 | 0.30 | 0.32 | 0.31 | 0.31 | 0.30 | 0.30 | 0.29 | 0.28 | 0.27 |
| 38S | 0.35 | 0.34 | 0.32 | 0.32 | 0.32 | 0.29 | 0.28 | 0.27 | 0.27 | 0.30 | 0.33 | 0.34 | 0.33 | 0.33 | 0.32 | 0.32 | 0.30 | 0.30 |
| 42S | 0.37 | 0.36 | 0.35 | 0.35 | 0.33 | 0.31 | 0.30 | 0.30 | 0.30 | 0.32 | 0.35 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 | 0.33 | 0.34 |
| 46S | 0.40 | 0.40 | 0.39 | 0.37 | 0.35 | 0.33 | 0.32 | 0.32 | 0.34 | 0.35 | 0.37 | 0.38 | 0.38 | 0.39 | 0.39 | 0.39 | 0.38 | 0.37 |
| 50S | 0.42 | 0.41 | 0.40 | 0.39 | 0.36 | 0.35 | 0.36 | 0.37 | 0.37 | 0.40 | 0.40 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 | 0.41 |
| 54S | 0.45 | 0.44 | 0.44 | 0.41 | 0.40 | 0.39 | 0.39 | 0.40 | 0.40 | 0.40 | 0.42 | 0.42 | 0.43 | 0.43 | 0.44 | 0.44 | 0.44 | 0.44 |
| 58S | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 | 0.44 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.46 |
| 62S | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.49 | 0.49 | 0.49 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 |
| 66S | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.52 | 0.51 | 0.51 | 0.51 | 0.50 | 0.50 | 0.50 | 0.51 |
| 70S | 0.56 | 0.56 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| 74S | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 78S | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 82S | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 86S | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 90S | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |

| | OE | 5E | 10E | 15E | 20E | 25E | 30E | 35E | 40E | 45E | 50E | 55E | 60E | 65E | 70E | 75E | 80E | 85E |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 90M | | | | | | | | | | | | | | | | | | |
| 86M | | | | | | | | | | | | | | | | | | |
| 82M | | | | | | | | | | | | | | | | | | |
| 78M | | | | | | | | | | | | | | | | | | |
| 74M | | | | | | | | | | | | | | | | | | |
| 70M | | | | | | | | | | | | | | | | | | |
| 66M | | | | | | | | | | | | | | | | | | |
| 62M | | | | | | | | | | | | | | | | | | |
| 58M | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.59 | 0.59 | 0.58 | 0.57 | 0.56 | 0.55 | 0.55 | 0.53 | 0.52 | 0.51 | 0.50 | 0.50 |
| 54M | 0.53 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.56 | 0.55 | 0.53 | 0.54 | 0.53 | 0.52 | 0.52 |
| 50M | 0.47 | 0.48 | 0.48 | 0.49 | 0.50 | 0.50 | 0.51 | 0.52 | 0.53 | 0.54 | 0.54 | 0.55 | 0.54 | 0.54 | 0.53 | 0.52 | 0.52 | 0.52 |
| 46M | 0.44 | 0.45 | 0.45 | 0.46 | 0.47 | 0.47 | 0.48 | 0.49 | 0.50 | 0.50 | 0.50 | 0.51 | 0.52 | 0.52 | 0.52 | 0.51 | 0.51 | 0.50 |
| 42M | 0.41 | 0.42 | 0.43 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.47 | 0.48 | 0.48 | 0.49 | 0.50 | 0.50 | 0.50 | 0.49 | 0.49 | 0.49 |
| 38M | 0.40 | 0.40 | 0.41 | 0.43 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.46 | 0.46 | 0.47 | 0.47 | 0.47 | 0.46 |
| 34M | 0.38 | 0.39 | 0.40 | 0.41 | 0.42 | 0.41 | 0.41 | 0.43 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.43 | 0.43 | 0.43 | 0.43 |
| 30M | 0.37 | 0.38 | 0.39 | 0.40 | 0.41 | 0.40 | 0.40 | 0.41 | 0.42 | 0.42 | 0.41 | 0.40 | 0.40 | 0.39 | 0.39 | 0.40 | 0.40 | 0.40 |
| 26M | 0.35 | 0.37 | 0.39 | 0.40 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 | 0.40 | 0.39 | 0.38 | 0.35 | 0.34 | 0.34 | 0.34 | 0.34 | 0.35 |
| 22M | 0.35 | 0.37 | 0.39 | 0.40 | 0.41 | 0.41 | 0.40 | 0.38 | 0.38 | 0.36 | 0.35 | 0.33 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 |
| 18M | 0.34 | 0.36 | 0.38 | 0.40 | 0.41 | 0.40 | 0.38 | 0.35 | 0.35 | 0.33 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
| 14M | 0.32 | 0.35 | 0.38 | 0.40 | 0.40 | 0.40 | 0.36 | 0.34 | 0.32 | 0.30 | 0.30 | 0.29 | 0.28 | 0.28 | 0.28 | 0.29 | 0.28 | 0.28 |
| 10M | 0.32 | 0.35 | 0.34 | 0.39 | 0.39 | 0.38 | 0.36 | 0.34 | 0.30 | 0.30 | 0.29 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 |
| 6M | 0.30 | 0.33 | 0.35 | 0.38 | 0.39 | 0.39 | 0.36 | 0.34 | 0.30 | 0.29 | 0.29 | 0.28 | 0.27 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 |
| 2M | 0.30 | 0.32 | 0.35 | 0.37 | 0.40 | 0.40 | 0.37 | 0.34 | 0.30 | 0.29 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.25 | 0.24 | 0.24 |
| 25 | 0.29 | 0.32 | 0.35 | 0.37 | 0.40 | 0.40 | 0.38 | 0.34 | 0.30 | 0.30 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 |
| 65 | 0.27 | 0.30 | 0.34 | 0.37 | 0.40 | 0.43 | 0.40 | 0.35 | 0.31 | 0.30 | 0.29 | 0.28 | 0.26 | 0.24 | 0.24 | 0.23 | 0.22 | 0.22 |
| 105 | 0.25 | 0.30 | 0.32 | 0.36 | 0.40 | 0.43 | 0.40 | 0.35 | 0.32 | 0.30 | 0.29 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 | 0.21 |
| 145 | 0.24 | 0.29 | 0.31 | 0.35 | 0.37 | 0.41 | 0.40 | 0.36 | 0.33 | 0.30 | 0.29 | 0.28 | 0.26 | 0.25 | 0.24 | 0.22 | 0.21 | 0.20 |
| 185 | 0.23 | 0.26 | 0.30 | 0.33 | 0.35 | 0.38 | 0.38 | 0.36 | 0.32 | 0.30 | 0.29 | 0.27 | 0.26 | 0.25 | 0.23 | 0.22 | 0.20 | 0.20 |
| 225 | 0.22 | 0.25 | 0.28 | 0.30 | 0.33 | 0.36 | 0.36 | 0.35 | 0.32 | 0.30 | 0.28 | 0.27 | 0.25 | 0.24 | 0.23 | 0.21 | 0.20 | 0.20 |
| 265 | 0.23 | 0.25 | 0.27 | 0.29 | 0.30 | 0.33 | 0.35 | 0.34 | 0.30 | 0.29 | 0.28 | 0.27 | 0.24 | 0.25 | 0.24 | 0.22 | 0.20 | 0.20 |
| 305 | 0.25 | 0.25 | 0.27 | 0.29 | 0.30 | 0.32 | 0.33 | 0.32 | 0.30 | 0.29 | 0.28 | 0.28 | 0.26 | 0.25 | 0.25 | 0.24 | 0.24 | 0.23 |
| 345 | 0.28 | 0.28 | 0.29 | 0.30 | 0.30 | 0.32 | 0.33 | 0.32 | 0.30 | 0.30 | 0.30 | 0.29 | 0.29 | 0.27 | 0.27 | 0.26 | 0.26 | 0.25 |
| 385 | 0.30 | 0.31 | 0.31 | 0.32 | 0.33 | 0.34 | 0.34 | 0.34 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 | 0.30 | 0.30 | 0.29 | 0.29 | 0.29 |
| 425 | 0.34 | 0.34 | 0.34 | 0.34 | 0.35 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 |
| 465 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.35 | 0.35 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | 0.34 |
| 505 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.40 | 0.40 | 0.39 | 0.39 | 0.39 | 0.38 |
| 545 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.42 | 0.41 |
| 585 | 0.46 | 0.46 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| 625 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.50 | 0.50 | 0.50 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.49 | 0.51 |
| 665 | 0.51 | 0.51 | 0.51 | 0.52 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 |
| 705 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 | 0.56 | 0.56 | 0.57 | 0.58 | 0.58 | 0.59 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| 745 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | | | | | | | | | | | | |
| 785 | | | | | | | | | | | | | | | | | | |
| 825 | | | | | | | | | | | | | | | | | | |
| 865 | | | | | | | | | | | | | | | | | | |
| 905 | | | | | | | | | | | | | | | | | | |

TABLE 5.6 JAN PLANETARY ALBEDO (FRACTIONS)

[illegible]

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